IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants:	Parasnis et al.	Attorney Docket No: MICR0173
Serial No:	09/533,049	Group Art Unit: 2143
Filed:	March 22, 2000	Examiner: A. A. Boutah
Title:	SYSTEM AND METHOD FOR RECORDING A PRESENTATION FOR ON-DEMAND VIEWING OVER A COMPUTER NETWORK	

SUBSTITUTE APPEAL BRIEF

Bellevue, Washington 98004

June 12, 2006

TO THE DIRECTOR OF THE PATENT AND TRADEMARK OFFICE:

This is an appeal from a final rejection by Examiner Alina. A. Boutah of Group Art Unit 2143. A Final Rejection was mailed on February 16, 2005. Appellant filed a timely Notice of Appeal on June 23, 2005 and an Appeal Brief on August 09, 2005. This Substitute Appeal Brief addresses objections raised in a Notification of Non-Compliant Appeal Brief mailed on May 31, 2006.

The jurisdiction of this board is invoked under the provisions of 35 U.S.C. § 134 and 37 C.F.R. § 41.

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REAL PARTY IN INTEREST

The real party in interest in this appeal is hereby identified as Microsoft Corporation, since all right and title in the invention and in the patent application on appeal has been assigned to Microsoft Corporation, as evidenced by a chain of title from the inventors in the patent application identified above to the current assignee, as shown below.

An assignment of all rights and title in the present patent application was made by inventors **Shashank M. Parasnis** (assignment executed on July 14, 2000)**, Paul C. Poon** (assignment executed on March 17, 2000), and **Paul O. Warrin** (assignment executed on March 15, 2000) to **Microsoft Corporation**. The assignments were recorded in the U.S. Patent and Trademark Office on July 26, 2000 at Reel 011003, Frame 0922; on March 22, 2000 at Reel 010695, Frame 0410; and on March 22, 2000 at Reel 010695, Frame 0413, respectively.

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RELATED APPEALS AND INTERFERENCES

No other appeals or interferences are known to appellants, appellant's undersigned legal representative, or by the assignee of this application that will directly affect or be directly affected by or have a bearing on the Board's decision in this pending appeal.

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STATUS OF THE CLAIMS

Claims 1-4 and 6-29 remain pending in the application on appeal, Claim 5 having been canceled. No claims have been allowed. Claims 1-4 and 6-29 have been rejected under 35 U.S.C. § 103. Appellants hereby appeal that rejection.

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STATUS OF THE AMENDMENTS

A Request for Reconsideration in response to the Final Office Action in this application was mailed on April 08, 2005. An Advisory Action mailed on May 12, 2005, indicated that for purposes of appeal, the amendment would be entered. No further amendment has been filed.

A copy of the claims on appeal, including all amendments actually entered, is appended hereto.

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SUMMARY OF CLAIMED SUBJECT MATTER

Independent Claim 1

According to a first aspect of the invention, a method is provided for recording a live presentation (an exemplary flowchart for which is shown in FIGURE 20) including a predefined content portion (e.g., a presentation as described in the specification at page 13, lines 23-32) that includes a plurality of presentation slides (e.g., presentation slide 1813 of FIGURE 24) displayed in response to slide triggering events during the live presentation (e.g., execution of an animation command, see specification, page 38, lines 20-21), and a live portion with live audio and/or visual content performed in conjunction with display of said plurality of presentation slides during the live presentation. The method comprises the steps of generating slide display commands (e.g., slide display script commands, see specification, page 40, lines 7-10) corresponding to said slide triggering events (e.g., block 1613 and block 1614 of FIGURE 20 and related text in specification) captured in real time during the presentation when presented live (e.g., block 1612 of FIGURE 20 and related text in specification), for controlling display of said plurality of presentation slides during playback of a recorded presentation (e.g., see specification, page 43, lines 1-4). It also includes the step of automatically embedding the slide display commands into a data stream as the data stream is produced (e.g., see specification, page 40, lines 10-11, and block 1616 of FIGURE 20), the data stream comprising data corresponding to the live portion of the presentation (e.g., see specification, page 40, line 11), wherein the live content is captured as a plurality of video frames (e.g., video frames 1700 of FIGURE 21) comprising a plurality of keyframes (e.g., dark-lined frames 1708 of FIGURE 21) and deltaframes (e.g., thin-lined frames 1706 of FIGURE 21). The plurality of keyframes and deltaframes are automatically time indexed as the live content is captured to enable synchronization of the slide display commands with the live content (e.g., see specification, page 41, line 32-page 42, line 1). Another step includes saving the data stream with embedded slide display commands to a file (e.g., block 1622 of FIGURE 20) such that when the file is played, said live portion is reproduced and said plurality of presentation slides are displayed in substantial synchrony with said live portion as it is played, thereby replicating the live presentation.

Independent Claim 9

According to a second aspect of the invention, a method is provided for reproducing on a viewing computer a presentation that was previously presented live (an exemplary flowchart for which is shown in FIGURE 22), said viewing computer having a display (e.g., workstation 1186 or

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personal computer 1182 of FIGURE 9 and monitor 47 of FIGURE 25), said presentation including a predefined content portion with a plurality of presentation slides (e.g., presentation slide 1813 of FIGURE 24) that were displayed in response to slide triggering events (e.g., execution of an animation command, see specification, page 38, lines 20-21) during the presentation when it was presented live, and a live portion comprising live audio and/or visual content performed in conjunction with display of said plurality of presentation slides during the presentation when it was presented live. The method comprises the steps of producing a recording of the presentation when it was presented live by performing the steps of: (1) producing a data stream comprising data corresponding to the live portion of the presentation (e.g., see specification, page 40, lines 21-22 and block 1612 of FIGURE 20), wherein the live portion of the presentation is captured as a plurality of video frames (e.g., video frames 1700 of FIGURE 21) comprising a plurality of keyframes (e.g., dark-lined frames 1708 of FIGURE 21) and deltaframes (e.g., thin-lined frames 1706 of FIGURE 21); (2) generating slide display commands (e.g., slide display script commands of specification, page 40, lines 7-10) corresponding to said slide triggering events (e.g., block 1613 and block 1614 of FIGURE 20) captured in real time during the presentation when presented live (e.g., block 1612 of FIGURE 20), each slide display command controlling display of an associated presentation slide when the recording is played (e.g., see specification, page 43, lines 1-4); (3) automatically including the slide display commands with the data corresponding to the live portion of the presentation in the data stream as the data stream is being produced, said slide display commands being automatically time indexed (e.g., see specification, page 40, lines 20-21) in regard to the keyframes and deltaframes within the data stream based upon the time when the slide triggering events occurred in the presentation when presented live; and (4) saving the data stream to a data stream file (e.g., block 1622 of FIGURE 20) that is accessible by the viewing computer. Additional steps include saving the predefined content portion to at least one presentation slide file that is accessible by the viewing computer (e.g., see blocks 1606 and 1608 of FIGURE 20; specification, page 39, line 31-page 40, line 4); accessing the data stream file with the viewing computer (e.g., see blocks 1808 and 1810 of FIGURE 22, specification, page 43, lines 20-32); reproducing the live portion of the presentation on the display of the viewing computer by playing the data stream file (e.g., see block 1812 of FIGURE 22, specification, page 44, lines 22-24); and extracting the slide display commands from the data stream as the slide display commands are encountered while playing the data stream file (e.g., block 1814 of FIGURE 22, see specification, page 44, lines 27-29).

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The method also includes the step of, in response to each slide display command that is extracted in the preceding step, accessing data corresponding to its associated presentation slide with the viewing computer (e.g., block 1816 of FIGURE 22, specification, page 46, lines 1-11); and reproducing each of the plurality of presentation slides on the display of the viewing computer as data corresponding to that presentation slide is accessed by the viewing computer in the preceding step (e.g., block 1818 of FIGURE 22, see specification, page 46, lines 13-16), so that when the presentation is reproduced, the associated presentation slide is displayed at substantially an identical time relative to when displayed during the live portion of the presentation when presented live (e.g., see specification, page 46, lines 17-20).

Independent Claim 16

According to a third aspect of the invention, a system (e.g., see FIGURE 25) is directed towards recording a live presentation (an exemplary flowchart for which is shown in FIGURE 20) including a predefined content portion having a plurality of presentation slides (e.g., presentation slide 1813 of FIGURE 24) that are displayed in response to slide triggering events (e.g., execution of an animation command, see specification, page 38, lines 20-21) during the live presentation, and a live portion with live audio and/or visual content performed in conjunction with display of said plurality of presentation slides during the live presentation. The system comprises a local computer (e.g., conventional personal computer 20 of FIGURE 25) having a memory (e.g., system memory 22 of FIGURE 25) in which a plurality of machine instructions are stored, a user interface (e.g., a keyboard 40 and a pointing device 42 of FIGURE 25), and a processor (e.g., a processing unit 21 of FIGURE 25) coupled to the memory for executing the machine instructions. The system also comprises a presentation application program (e.g., Microsoft Corporation's POWERPOINT 2000™, see specification, page 13, lines 23-32) comprising a portion of the plurality of machine instructions stored in the memory of the local computer. The presentation application program enables a presenter (e.g., presenter 1150 of FIGURE 9) to change slides during the live presentation in response to slide triggering events (e.g., block 1613 and block 1614 of FIGURE 20) entered through the user interface (e.g., see specification, page 26, lines 26-32); and slide display commands (e.g., slide display script commands, see specification, page 40, lines 7-10) to be generated in response to the slide triggering events. Furthermore, the system includes an audio capture subsystem (e.g., sound capture circuit 1157 of FIGURE 9) that produces a digital audio signal corresponding to the live audio content; and an encoding application module (e.g., see encoding computer 1166 of FIGURE 9) comprising a portion of

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the plurality of machine instructions stored in the memory of the local computer. The encoding application module is used for encoding the digital audio signal into a data stream having a streaming data format (e.g., see specification, page 27, lines 25-29 and block 1612 of FIGURE 20); automatically including the slide display commands with the digital audio signal in the data stream as the digital audio signal is encoded into the data stream (e.g., see specification, page 30, line 32–page 31, line 3), said data stream being automatically time indexed to enable synchronization of the slide display commands with the digital audio signal (e.g., see specification, page 40, lines 20-25); and saving the data stream to a data stream file such that when the data stream file is played (e.g., block 1622 of FIGURE 20), said audio content is reproduced, and said plurality of presentation slides are displayed in substantial synchrony with said audio content as it is reproduced, thereby replicating the live presentation and a timing with which the presentation slides were displayed during the live presentation in connection with the live audio content (e.g., see specification, page 46, lines 17-20).

Independent Claim 20

According to a fourth aspect of the invention, a system (e.g., see FIGURE 25) is directed towards recording a live presentation including a predefined content portion having a plurality of presentation slides (e.g., presentation slide 1813 of FIGURE 24) that are displayed in response to slide triggering events during the live presentation (e.g., execution of an animation command, see specification, page 38, lines 20-21), and a live portion comprising live audio content performed in conjunction with display of said plurality of presentation slides during the live presentation. The system comprises a local computer (e.g., conventional personal computer 20 of FIGURE 25) having a memory (e.g., system memory 22 of FIGURE 25) in which a plurality of machine instructions are stored, a user interface (e.g., a keyboard 40 and a pointing device 42 of FIGURE 25), and a processor (e.g., a processing unit 21 of FIGURE 25) coupled to the memory for executing the machine instructions; an audio capture subsystem (e.g., sound capture circuit 1157 of FIGURE 9) that produces a digital audio signal corresponding to the live audio content; and an encoding computer (e.g., see encoding computer 1166 of FIGURE 9) having a memory in which a plurality of machine instructions are stored, and a processor coupled to the memory for executing the machine instructions, the encoding computer being linked in communication with the local computer (e.g., see specification, page 28, lines 27-28) and the audio capture subsystem. The system comprises a portion of the plurality of machine instructions stored in the memory of the encoding computer that comprises an

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encoding module. Execution of the encoding module performs the functions of encoding the digital audio signal into a data stream (e.g., see block 1612 of FIGURE 20) having a streaming data format (e.g., see specification, page 28, lines 17-24), wherein the data stream is automatically time indexed to enable synchronization of the slide display commands (e.g., slide display script commands, see specification, page 40, lines 7-13) with the digital audio signal; and saving the data stream to a data stream file (e.g., block 1622 of FIGURE 20). The system also comprises a presentation application program (e.g., Microsoft Corporation's POWERPOINT 2000™, see specification, page 13, lines 23-32) comprising a portion of the plurality of machine instructions stored in the memory of the local computer. Execution of the presentation application program enables a presenter to change slides during the live presentation by entering slide triggering events (e.g., execution of an animation command, see specification, page 38, lines 20-21) through the user interface; slide display commands to be generated in response to the slide triggering events (e.g., block 1613 and block 1614 of FIGURE 20); and communication of the slide display commands to the encoding computer (e.g., see block 1614 of FIGURE 20), said slide display commands being automatically included in the data stream with the encoded digital audio signal by the encoding module as the slide display commands are received by the encoding computer (e.g., see block 1616 of FIGURE 20) and as the digital audio signal is encoded into the data stream, such that when the data stream file is played, so that said audio content is reproduced and said plurality of presentation slides are displayed in substantial synchrony with said audio content as it is reproduced, thereby replicating the live presentation and the timing of the presentation slides being displayed in connection with the audio content (e.g., see specification, page 46, lines 17-20).

Independent Claim 24

A fifth aspect of the invention is directed towards a computer-readable medium having computer-executable instructions for recording a live presentation having a predefined content portion that includes a plurality of presentation slides (e.g., presentation slide 1813 of FIGURE 24) displayed on a computer in response to slide triggering events during the live presentation (e.g., execution of an animation command, see specification, page 38, lines 20-21), and a live portion comprising live audio and/or visual content performed in conjunction with display of said plurality of presentation slides during the live presentation. Execution of the computer-executable instructions causes a computer to generate slide display commands (e.g., slide display script commands, see specification, page 40, lines 7-10) corresponding to said slide triggering events (e.g.,

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block 1613 and block 1614 of FIGURE 20) captured in real time during the presentation when presented live, for controlling display of said plurality of presentation slides during playback of a recorded presentation (e.g., see specification, page 43, lines 1-4); automatically embed the slide display commands into a data stream as the data stream is produced (e.g., see specification, page 40, lines 10-11 and block 1616 of FIGURE 20), the data stream comprising data corresponding to the live portion of the presentation (e.g., see specification, page 40, line 11) automatically indexed with timing to ensure that the slide display commands are synchronized with the audio and/or visual content as performed in the live presentation (e.g., see FIGURE 21); and save the data stream with embedded slide display commands to a file (e.g., block 1622 of FIGURE 20), such that when the file is played, said live portion is reproduced and such that said plurality of presentation slides are displayed in substantial synchrony with said live portion (e.g., see specification, page 46, lines 17-20), thereby replicating the live presentation and display of said plurality of presentation slides.

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GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A determination as to whether Claims 1-4 and 6-29 are patentable under 35 U.S.C. § 103(a) over "Mastering Microsoft Internet Information Server 4," by Peter Dyson in view of Gomez et al. (U.S. Patent No. 6,697,569) in view of Klemets et al. (U.S. Published Application No. 2001/0013068).

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ARGUMENT

Rejection Under 35 U.S.C. § 103(a)

The Examiner has rejected Claims 1-4 and 6-29 under 35 U.S.C. § 103(a) as being unpatentable over "Mastering Microsoft Internet Information Server 4," by Peter Dyson (hereinafter "Dyson") in view of Gomez et al. (U.S. Patent No. 6,697,569 - hereinafter "Gomez") in view of Klemets et al. (U.S. Published Application No. 2001/0013068 - hereinafter "Klemets"). (Page 2 in Office Action dated February 16, 2005).

In regards to independent Claims 1, 9, 16, 20, and 24, the Examiner asserts that it would have been obvious to one of ordinary skill in the art to combine the teaching of Dyson with the teaching of Gomez and Klemets, because slide display commands allow users to control the order of the slides, and time indexing the plurality of deltaframes and keyframes permits synchronization for display at the client computer at predetermined points corresponding to the timelines of the video stream. (Page 4 in Office Action dated February 16, 2005). Appellants respectfully disagree for the following reasons. The following discussion only deals with the reference(s) that the Examiner has cited as teaching specific portions of appellants' claims, but appellants also note that none of the other references cited teach or suggest these aspects of appellants' claims.

The Combined References Fail to Teach or Suggest Automatic Time Indexing as Recited in Independent Claims 1, 9, 16, 20 and 24

Independent Claims 1, 9, 16, 20, and 24 all include, in general, the recitation of "automatically time indexing." Specifically:

- Independent Claim 1 recites in step(c) "**automatically time indexing** the plurality of keyframes and deltaframes…"
- Independent Claim 9 recites in step(a)(iii) "…said slide display commands being **automatically time indexed** in regard to the keyframes and deltaframes…"
- Independent Claim 16 recites in step(d)(ii) "…said data stream being **automatically time indexed**…"
- Independent Claim 20 recites in step(d)(i) "…said data stream being **automatically time indexed**…"
- Independent Claim 24 recites in step(b) "…the data stream comprising data corresponding to the live portion of the presentation **automatically indexed with timing**…"

With respect to independent Claims 1, 9, 16, 20, and 24, the Examiner asserts that Klemets teaches time indexing the plurality of keyframes and deltaframes to enable synchronization of displayable events. (Page 3 of Office Action dated February 16, 2005). The Examiner cites Figure 7

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and paragraphs 0052, 0053, and 0065-0068 of Klemets in support of her assertion. However, Klemets does not appear to perform time indexing in an **automatic** manner as appellants recite in their claims. Instead, Klemets appears to perform time indexing, if at all, in a **manual** manner.

In regard to the concept of time indexing, appellants' specification explains how time indexing is automatically employed, as follows:

> An exemplary timing sequence is now described with reference to a timeline 1707 comprising various timing marks, as shown in the Figure. A frameset comprising 15 video frames, and a corresponding audio waveform is produced in accordance with each of the timing marks. In the timing sequence, a script command for triggering the display of slide 1 is embedded into the stream 8 seconds after the start of the presentation. As a result, this script command will have an inherent time stamp of 8 seconds. In a similar fashion, a script command for displaying slide 2 will have an inherent time stamp of 28 seconds, and the script command for displaying slide 3 will have an inherent time stamp of 62 seconds. Assuming that a first keyframe (not shown) is encoded at 0 seconds (note that the first video frame will always be a keyframe), a keyframe 1708 is ***automatically*** encoded at 8 seconds, a keyframe 1710 is ***automatically*** encoded at 24 seconds, and a keyframe 1712 is encoded in accord with the sixth frame of a frameset 1714, due to motion of the presenter, which occurs at approximately 58 seconds. (Emphasis added, see appellants' specification, page 42, lines 6-18.)

In contrast, Klemets teaches:

> ***Designer 219*** may view frames from video stream 500 displayed in video window 720 for ***referencing and selecting appropriate time stamps*** to use in generating annotation streams. Within video window 720, VCR function buttons, e.g., a rewind button 724, a play button 726 and a fast forward button 728, are available for designer 219 to quickly traverse video stream 500. Since video window 720 is provided as a convenience for designer 219, if designer 219 has ***prior knowledge*** of the content of the video stream, designer 219 may proceed with the generation of the annotation streams without viewing video window 720. (Emphasis added, Klemets, paragraph 0050.)

> As shown in FIG. 7, ***author tool 700*** displays a flipper time track 750, a video time track 760, an audio time track 770, a ticker time track 780 and a table of contents (TOC) time track 790. Flipper time track 750 and ticker time track 780 aid designer 217 in generating a flipper annotation stream and a ticker annotation stream, respectively. Another visual control aid, zoom bar 716, enables designer 219 to select the respective portions of the complete time tracks 750, 760, 770, 780 and 790, as defined by start time indicator 712 and end time indicator 718, which is currently displayed by ***author tool 700*** (Emphasis added, Klemets, paragraph 0051).

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> In accordance with one aspect of the invention, ***annotation frames are generated by designer 217*** to form customized annotation streams (step 440). A time hairline 715 spanning time tracks 750, 760, 770, 780 and 790 provides designer 217 with a visual aid ***to select an appropriate time***, displayed in time indicator 714, for synchronizing a displayable event. The exemplary format of time indicators 712, 714 and 718 are "hours:minutes:seconds." (Emphasis added, Klemets, paragraph 0052.)

Via use of an author tool, a time hairline spanning time tracks provides a designer with a visual aid to select an appropriate time, displayed in a time indicator, for synchronizing a displayable event. (Klemets, paragraph 0052.) In addition, the designer may view frames in the video window for referencing and selecting time stamps for use in generating annotation streams. (Klemets, paragraph 0050.) Thus, it appears that the designer selects an appropriate time to synchronize a displayable event and the designer does so in a manual fashion as opposed to appellants who automatically perform time indexing.

<u>The Combined References Fail To Teach or Suggest Automatic Time Indexing When Live Content Is Captured or Data Stream Is Produced as Recited in Independent Claims 1, 9 and 24</u>

In addition, independent Claims 1, 9, and 24 all recite, in general, that the automatic time indexing occurs "when the live content is captured" (i.e., when the data stream is being produced). Specifically:

- Independent Claim 1 recites in step(c) "automatically time indexing the plurality of keyframes and deltaframes ***as the live content is captured***…"
- Independent Claim 9 recites in step(a)(iii) "…***as the data stream is being produced***, said slide display commands being automatically time indexed in regard to the keyframes and deltaframes…"
- Independent Claim 24 recites in step(b) "…***as the data stream is produced,*** the data stream comprising data corresponding to the live portion of the presentation automatically indexed with timing…"

With respect to independent Claims 1, 9, and 24, the Examiner additionally asserts that Klemets teaches a live content being captured as a plurality of video frames comprising a plurality of keyframes and deltaframes (Page 3 of Office Action dated February 16, 2005) and cites Figure 7 and paragraphs 0052, 0053, and 0065-0068 of Klemets. However, Klemets does not appear to perform time indexing ***when*** the live content is being captured or ***when*** the data stream is produced. Instead, Klemets appears to perform time indexing, if at all, ***after*** the live content is captured, or ***after*** the data stream is produced.

Note that in paragraph 0050, Klemets employs a VCR button to enable the designer to

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traverse the video stream. Thus, it appears that the video stream has already been captured and is being edited after being captured. Also, in paragraph 0050, Klemets discloses that if the designer has "prior knowledge" of the content of the video stream, the designer may proceed with the generation of the annotation streams without the viewing video window. Thus, it is implied that the designer is editing the content of the video stream in a post production environment and not as recited by appellants, whose claims provide for automatically time indexing the keyframes and deltaframes as the live content is being captured, or when the data stream is produced.

The Combined References Fail to Teach or Suggest Keyframes and Deltaframes as Recited in Independent Claims 1 and 9

Furthermore, independent Claims 1 and 9 also recite, in general, that a "video frame comprises a plurality of keyframes and deltaframes" and that "slide display commands are indexed with the keyframes and deltaframes such that the slide display commands are synchronized with the live content." Specifically:

- Independent Claim 1 recites in step(b) "…wherein the live content is captured as a plurality of ***video frames comprising a plurality of keyframes and deltaframes***;"
- Independent Claim 1 also recites in step(c) "automatically time indexing the ***plurality of keyframes and deltaframes*** as the live content is captured to enable synchronization of the slide display commands with the live content."
- Independent Claim 9 recites in step(a)(i) "…wherein the live portion of the presentation is captured as a ***plurality of video frames comprising a plurality of keyframes and deltaframes***;"
- Independent Claim 9 also recites in step(a)(iii) "…said slide display commands being automatically time indexed in regard to the ***keyframes and deltaframes within the data stream*** based upon the time when the slide triggering events occurred in the presentation when presented live;"

In contrast, Klemets does not appear to time index any slide display commands with keyframes and deltaframes (which are included in appellants' video stream). Although Klemets discloses at least three frames, including a video frame, an audio frame, and an annotation frame (Klemets, Abstract, lines 6-8), none of these frames appear to be equivalent to appellants' keyframes or deltaframes.

Note that appellants disclose that "[k]eyframes are video frames that comprise new data, while deltaframes comprise data corresponding to the difference between a current frame and its immediately preceding frame. Preferably, each slide display command will be indexed to a nearest preceding keyframe…" (Specification, page 7, lines 3-6). Furthermore, appellants define a key frame as a frame

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with new content, as shown in FIGURE 21 as dark-lined frame 1708 (see appellants' specification, page 41, lines 22-23). In addition, a delta frame is a frame that only contains differential data, which are shown in FIGURE 21 as thin-lined frame 1706 (see appellants' specification, page 41, lines 13-15).

However, Klemets does not appear to distinguish between video frames as do appellants. Paragraphs 0065-0068, which the Examiner cites as teaching this portion of appellants' claims, are directed towards annotation frames. But annotation frames are apparently different than video frames. It appears that Klemets provides a designer a method of viewing video frames from video stream 500 so that the designer may reference and select appropriate time stamps to use in generating annotation streams (Klemets, paragraph 0050, lines 1-4). This teaching implies that a video frame is apparently a different type of frame than an annotation frame, because the video stream comprising video frames has already been generated and an annotation stream that comprises annotation frames is also to be generated.

Since the video stream has been generated, the designer can proceed to build two different types of annotation streams (Klemets, paragraph 0049, lines 3-4). One type of annotation stream is a data annotation stream in which the displayable event data are embedded within the annotation stream (Klemets, paragraph 0049, lines 4-6). The second type of annotation stream is a locator annotation stream in which an event locator points to the location of the displayable data instead of embedding the displayable data (Klemets, paragraph 0049, lines 9-14). Thus, a portion of the output of the designer work is the production of a stream that is separate and different from the video data stream. Note that Klemets discloses that "Locator annotation stream 800a includes an annotation stream header 810a and a plurality of annotation frames 820a, 830a, 840a, …890a. Each annotation frame includes an event locator and an event time marker" (Klemets, paragraph 0054, lines 3-8). Although it appears that Klemets' annotation stream is derived or generated from the video stream, the annotation frame is still part of an entirely separate data stream, i.e., the annotation stream. Accordingly, Klemets fails to teach an equivalent of a keyframe or deltaframe.

It should thus be apparent that if keyframes and deltaframes do not exist in Klemets, it is therefore impossible for Klemets to perform time indexing on keyframes and deltaframes.

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The Combined References Fail to Teach or Suggest Generation of Slide Display Commands in Response to Slide Triggering Events as Recited in Independent Claims 1, 9, 16, 20 and 24

Independent Claims 1, 9, 16, 20, and 24 all recite, in general, that "slide display commands are generated" and "these slide display commands correspond to said slide triggering events." Specifically:

- Independent Claim 1 recites in step(a) "generating slide display ***commands*** **corresponding to said slide triggering events**..."
- Independent Claim 9 recites in step(a)(ii) "generating slide display ***commands*** **corresponding to said slide triggering events**..."
- Independent Claim 16 recites in step(b)(ii) "slide display ***commands*** to be generated ***in response to the slide triggering events***..."
- Independent Claim 20 recites in step(e)(ii) "slide display ***commands*** to be generated ***in response to the slide triggering events***...
- Independent Claim 24 recites in step(a) "generate slide display ***commands corresponding to said slide triggering events***..."

With respect to independent Claims 1, 9, 16, 20, and 24, the Examiner asserts that Gomez teaches generating slide display commands corresponding to said slide triggering events captured in real time during the presentation when presented live, for controlling display of said plurality of presentation slides. (Page 3 of Office Action dated February 16, 2005). The Examiner references the Abstract; Figure 4; column 1, lines 44 – column 2, line 1; column 3, lines 33-43; and column 7, lines 5-8 and lines 35 to 60. (Page 2 of Advisory Action dated May 12, 2005). Furthermore, the Examiner has also asserted that the flipping of still images is interpreted as generating a slide display command. *Id.* In response to appellants' argument that the references fail to show certain features of appellants' claims, the Examiner asserts that the features upon which appellant relies (i.e., HTML script commands) are not recited in the claims. *Id.*

The Abstract and other cited portions of Gomez disclose:

> A full multimedia production such as a seminar, conference, lecture, etc. can be captured in real time using multiple cameras. A live movie of a speaker together with **the speaker's flipping still images** or slide show can be viewed interactively within the same video display screen. The complete production can be stored on a hard drive for retrieval on demand, or sent live to a host server for live distribution throughout a data network. It is also possible to store the complete presentation on portable storage media and/or to send the complete presentation as an e-mail. (Gomez, Abstract - emphasis added.)

> Powerpoint slideshows etc., and other computer-based presentations are often sent as e-mail the day after the presentation, for conversion to JPEG or other suitable format by the production staff. It is, of course, possible to take stills at the same time as the

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pictures are presented, which is done when external presenters hold presentations (Gomez, column 1, lines 44-49).

The Powerpoint slides, when they arrive by e-mail, are (as mentioned above) converted to JPEG by the streaming production staff. The slides are also resized to fit in an HTML page together with the video window (Gomez, column 1, lines 50-53).

The production of streaming videos for 28.8K, 56K and 100K bit rates needs an extra window for the real information shown on slides, etc., because the video window is very small and the information in it is unreadable (Gomez, column 1, lines 54-57).

The video film is often manually edited with software like Adobe Premier. After editing, if any, the encoder is used to compress the video and audio to the correct baud-rate, and encode them to a streaming format like ASF (Active Streaming Format) or RMFF (Real Media File Format). The encoding takes the same amount of time as it takes to run through the movie. This is time consuming (Gomez, column 1, lines 58-64).

To be able to show the JPEG images (e.g. slide show) at the right time (compared to the movie events), synchronization points (time stamps) must be inserted in the stream file (Gomez, column 1, line 65-column 2, line 2).

Furthermore, Gomez discloses (with the portion cited by the Examiner in bold):

As shown in FIG. 1, an exemplary system according to principles of the invention for automated conversion of a visual presentation into digital data format includes video cameras 11 and 13, a microphone 12, an optional lap top computer 10, and a digital field producer unit 14, also referred to herein as DFP unit or DFP computer. One of the video cameras 13 covers the speaker and provides video information to the live video section 1, and the other video **camera 11 covers the slide show, flip chart, white board, etc. and provides the corresponding video information to the still video section 3. The microphone provides the audio to the sound section 2. In the example DFP unit of FIG. 1, the live video is encoded 4 (e.g., in MPEG) in real time during the speaker's visual presentation, and the still video of the slide show etc. is converted 5 into JPEG files in real time during the presentation** (Emphasis added, Gomez, column 3, lines 25-40).

A synchronizing section 16 of FIG. 1 operates automatically during the speaker's presentation to synchronize the still video information from the slide show, flip chart etc. with the live video information from the speaker. Both the live video and the still video can then be streamed live through a server 15 to multiple individual users via a data network 18 such as, for example, the Internet, a LAN, or a data network including a wireless link (Emphasis added, Gomez, column 3, lines 25-48).

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Finally, Gomez discloses (with the portion cited by the Examiner in bold) :

> After an event (for example a seminar) has been recorded, a viewer can replay the video recording by performing a similar web connection as in the above-described live broadcast case. A URL is typed into the viewer's web browser, which connects the viewer to the web server 37 in the DFP computer. The web server 37 will then stream out the recorded video information the same as it would be streamed during the live streaming broadcast. The still video images are synchronized as in the live case, and they change in the output video stream at the same relative time as they did during the actual event. The viewer can decide when to start **(or restart) the video stream in order to view the event as desired, and can navigate to a particular part of the recorded event, for example, by using a slider control provided by the web browser** (Emphasis added, Gomez, column 6, line 61-column 7, line 8).

> FIG. 4 illustrates exemplary operations of the web browser and web server of FIG. 2. The operations of FIG. 4 are advantageously executed during the web browser's processing of the ASF file. When a URL is detected (for example in the form of a Script Command Object) at 410 by the ASF player, the web browser at 420 interprets the URL for server destination and protocol to use (e.g., HTTP), connects to the web server and sends the web server a request for the HTML document. At 430, the web server accesses the HTML document from storage 172 and extracts therefrom the JPEG file name. At 440, the web server retrieves the JPEG file from storage 173 and sends it to the browser. At 450, the browser displays the JPEG image at the appropriate time with respect to the video streaming presentation (Gomez, column 7, lines 35-49).

> During replay broadcasts, the web server retrieves and forwards the stored ASF file (containing the encoded/compressed "live" video data) from storage at 171, and also accesses the stored HTML documents, and retrieves and forwards the stored JPEG documents, generally as described above with respect to live streaming operation. The web browser receives the ASF file and JPEG documents, and synchronously integrates the "still" video images into the "live" video stream using generally the same procedure discussed above with respect to live streaming operation (Gomez, column 7, lines 35-60).

Nevertheless, Gomez does not appear to generate slide display commands in response to a slide triggering event, but instead appears to generate a URL in response to a timed interval.

It may be helpful to explain how the recitation in the claims of a slide display command relates to an embodiment disclosed in the specification of the present application. First, in regard to "slide display commands," appellants disclose and claim the generation of slide display commands, and the slide display commands are defined in the specification as comprising HTML script commands, as follows:

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> In addition to providing the ASF streaming content to the attendees' computers, the system also coordinates the display of the HTML presentation slide files on the attendees' computers so that each slide is displayed and animated in conjunction with the display and animation of the slide during the live broadcast. This function is performed by *slide display commands* (i.e., *HTML script commands*) that are generated in real-time and embedded into the ASF stream. The slide script commands are decoded in the attendees' computers to cause an appropriate slide display and/or animation to occur in synchrony with the live presentation. Further details of this process are described below. (Emphasis added; see appellants' specification, page 29, lines 20-27.)

In contrast, instead of the generation of a slide display command, Gomez teaches the generation of JPEG files, a corresponding HTML file, an HTML file name, and a URL, none of which are equivalent to slide display **commands**, as defined by appellants.

Note that the still video of the slide show is converted into JPEG files in real time during the presentation (Gomez, column 3, lines 38-40). As described in regard to FIGURE 2 of Gomez, the still image control is automated to cause the still image grabber and converter to create a JPEG image of the still video source (Gomez, column 5, lines 36-38). In addition, a corresponding wrapping HTML file is created by an HTML and URL generator (Gomez, column 5, lines 43-45). Furthermore, the HTML filename is sent as a relative URL from the generator to the encoder and streamer for inclusion in the encoded streaming video data (Gomez, column 5, lines 50-55). So when a URL is detected, for example in the form of a Script Command Object, by the ASF player, the web browser uses the URL to request the HTML documents, and once access is provided to the HTML document, the JPEG file name is extracted and retrieved from storage and sent to the browser that displays the JPEG image at the appropriate time (Gomez, column 7, lines 35-49). Thus, Gomez does not generate slide display ***commands*** that may be HTML slide commands embedded in the ASF stream, but instead generates JPEG file retrieval commands.

Also, the Examiner has asserted that the flipping of still images (Gomez, Abstract) is interpreted as generating a slide display command. (Page 2 of Advisory Action dated May 12, 2005). However, it appears to appellants that the flipping of still images should more logically be interpreted as a slide triggering event, as disclosed below. In regards to the generation of the slide display command corresponding to a slide triggering event, note that appellants' specification discloses that:

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> As discussed above, it is necessary to advance the presentation of the various slide show slides on the attendees' computers from a remote machine. In order to perform virtual scenarios such as a one-to-many presentation, a presenter must be able to remotely execute commands on the audience machines to advance the presentation or to execute animation effects. For example, if two users browse the same web page, they are viewing two distinct copies of the same web page. In order for one user to control the web page viewed by the other, some communication needs to occur between them. The communication is accomplished through a combination of two technologies: embedding script commands in an ASF stream, and animations in the POWERPOINT HTML files (i.e., the cached presentation slides). POWERPOINT is thus able to send events via an audio/video stream to the online attendee, and the ***events trigger commands*** on the attendee's computer that effect actions on the web pages displayed on the attendee's computer. (Emphasis added; see appellants' specification, page 38, lines 7-19.)
>
> As shown in FIGURE 19, the process begins in a block 1500, ***wherein a user executes commands in POWERPOINT, such as triggering the next animation.*** This step generates an event, which is captured using the application object model and converted to a syntax that can be inserted in an ASF format, as indicated by a block 1502. The syntax for the format is generally of the form: **Label Parameter**, where the number of Parameters after Label are generally unrestricted. In the case of POWERPOINT animations, the syntax is of the form **PPTCMD 1 1.** (Emphasis added; see appellants' specification, page 38, lines 20-26.)

Thus, for example, as indicated in the above citation, a slide triggering event may be the execution of an animation command, such as flipping a still image. But Gomez fails to disclose or suggest the generation of a slide display command as described above and fails to teach or suggest that the generation of a slide display command corresponds to a slide triggering event as described next.

Gomez's JPEG file retrieval commands do not correspond to slide triggering events but appear to correspond to a timed interval. Specifically, Gomez discloses that, taking JPEG files as an exemplary output, "each JPEG file produced by the still image grabber and converter portion 21 represents a freezing of the digital video data received from video grabber card in order to produce at a ***desired point in time***, a still image associated with the video being recorded by the still video camera 11." (Emphasis added, Gomez, column 4, lines 49-53.) Gomez further teaches that "In addition, the still image control can be automated according to principles of the invention to cause the still image grabber and converter to *periodically create* a JPEG image of the still video source." (Gomez, column 5, lines 36-39.) Thus, Gomez does not teach or suggest that there is any correspondence between the display of an image and a specific slide triggering event.

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The Combined References Fail to Teach or Suggest Controlling Display of Slides during Playback as Recited in Independent Claims 1, 9, 20 and 24

Independent Claims 1, 9, 20, and 24 all recite, in general, that the slide display commands are for "controlling display of the slides during playback." Specifically:

- Independent Claim 1 recites in step(a) "generating slide display commands corresponding to said slide triggering events captured in real time during the presentation when presented live, ***for controlling display of said plurality of presentation slides during playback of a recorded presentation***"
- Independent Claim 9 recites in step(a)(ii) "generating slide display commands corresponding to said slide triggering events captured in real time during the presentation when presented live, each slide display command controlling ***display of an associated presentation slide when the recording is played***"
- Independent Claim 20 recites in step(e)(iii) "…***said plurality of presentation slides are displayed in substantial synchrony*** …"
- Independent Claim 24 recites in step(a) "generate slide display commands corresponding to said slide triggering events captured in real time during the presentation when presented live, ***for controlling display of said plurality of presentation slides during playback of a recorded presentation.***"

Although Gomez discloses in the abstract that a live movie of a speaker together with the slide show can be viewed interactively within the same video display screen or that the complete production can be stored on a hard drive for retrieval on demand, Gomez does not teach or suggest that an actual slide show that the speaker originally presented is replayed. Instead, Gomez discloses that the still image grabber processes the video of the slide show by grabbing images, which are converted into JPEG files in real time during the presentation (Gomez, column 3, lines 37-40). Thus, during replay broadcasts, the web browser that receives the ASF file and the JPEG documents, synchronously integrates the "still" video images into the "live" video stream (Gomez, column 7, lines 57-60). Thus, unlike appellants' claimed invention, which displays the same plurality of presentation of slides during playback as was presented in the live presentation, during playback, Gomez merely displays a series of still pictures grabbed from the original presentation, which is not equivalent to the recitation in appellants' claims.

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CONCLUSION

The art cited by the Examiner in rejecting Claims 1-4 and 6-29 as obvious does not in combination disclose or suggest the recitation of these claims. Specifically, Klemets fails to teach any equivalent to automatic time indexing, or automatic time indexing when live content is captured, or time indexing to keyframes and deltaframes. In addition, Gomez fails to teach the generation of slide display commands and that the slide display commands correspond to slide triggering events.

Appellants therefore respectfully request that the Board of Patent Appeals and Interferences overrule the Examiner's rejection of the claims and require that the Examiner pass this case to issue without further delay.

Respectfully submitted,

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APPENDIX

Claims on Appeal

1. A method for recording a live presentation including a predefined content portion that includes a plurality of presentation slides displayed in response to slide triggering events during the live presentation, and a live portion with live audio and/or visual content performed in conjunction with display of said plurality of presentation slides during the live presentation, the method comprising the steps of:

(a) generating slide display commands corresponding to said slide triggering events captured in real time during the presentation when presented live, for controlling display of said plurality of presentation slides during playback of a recorded presentation;

(b) automatically embedding the slide display commands into a data stream as the data stream is produced, the data stream comprising data corresponding to the live portion of the presentation, wherein the live content is captured as a plurality of video frames comprising a plurality of keyframes and deltaframes;

(c) automatically time indexing the plurality of keyframes and deltaframes as the live content is captured to enable synchronization of the slide display commands with the live content; and

(d) saving the data stream with embedded slide display commands to a file such that when the file is played, said live portion is reproduced and said plurality of presentation slides are displayed in substantial synchrony with said live portion as it is played, thereby replicating the live presentation.

2. The method of Claim 1, wherein the live portion is captured as it is performed during the live presentation, further comprising the step of encoding the live portion into a digital streaming format, thereby producing the data stream.

3. The method of Claim 2, wherein the step of automatically embedding the slide display commands comprises the step of interleaving the slide display commands into the data stream as the slide display commands are generated.

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4. The method of Claim 2, wherein the live presentation is performed using a local computer that generates the slide display commands in response to the slide triggering events; and wherein the live portion of the live presentation is captured and encoded into the data stream using an encoding computer linked in communication with the local computer, further comprising the steps of:

(a) communicating the slide display commands from the local computer to the encoding computer; and

(b) interleaving the slide display commands into the data stream as they are received by the encoding computer.

6. The method of Claim 1, wherein the step of automatically time indexing the plurality of keyframes and deltaframes comprises the steps of:

(a) adding a plurality of time index values to the data stream;

(b) indexing each of said plurality of keyframes to a corresponding time index value based on the time stamp of the keyframe; and

(c) indexing each slide display command to a nearest preceding keyframe time index value based on a time stamp of the slide display command.

7. The method of Claim 1, wherein the step generating slide display commands comprises the steps of:

(a) capturing the slide triggering events as they occur during the live presentation; and

(b) generating slide display commands based on the slide triggering events that are captured.

8. The method of Claim 1, wherein each presentation slide is associated with a slide file that is saved to a predetermined location, and at least one of the slide display commands references the predetermined location of an associated slide file.

9. A method for reproducing on a viewing computer a presentation that was previously presented live, said viewing computer having a display, said presentation including a predefined content portion with a plurality of presentation slides that were displayed in response to slide triggering events during the presentation when it was presented live, and a live portion comprising live audio and/or visual content performed in conjunction with display of said plurality of presentation slides during the presentation when it was presented live, the method comprising the steps of:

(a) producing a recording of the presentation when it was presented live by performing the steps of:

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(i) producing a data stream comprising data corresponding to the live portion of the presentation, wherein the live portion of the presentation is captured as a plurality of video frames comprising a plurality of keyframes and deltaframes;

(ii) generating slide display commands corresponding to said slide triggering events captured in real time during the presentation when presented live, each slide display command controlling display of an associated presentation slide when the recording is played;

(iii) automatically including the slide display commands with the data corresponding to the live portion of the presentation in the data stream as the data stream is being produced, said slide display commands being automatically time indexed in regard to the keyframes and deltaframes within the data stream based upon the time when the slide triggering events occurred in the presentation when presented live; and

(iv) saving the data stream to a data stream file that is accessible by the viewing computer;

(b) saving the predefined content portion to at least one presentation slide file that is accessible by the viewing computer;

(c) accessing the data stream file with the viewing computer;

(d) reproducing the live portion of the presentation on the display of the viewing computer by playing the data stream file;

(e) extracting the slide display commands from the data stream as the slide display commands are encountered while playing the data stream file;

(f) in response to each slide display command that is extracted in the preceding step, accessing data corresponding to its associated presentation slide with the viewing computer; and

(g) reproducing each of the plurality of presentation slides on the display of the viewing computer as data corresponding to that presentation slide is accessed by the viewing computer in the preceding step, so that when the presentation is reproduced, the associated presentation slide is displayed at substantially an identical time relative to when displayed during the live portion of the presentation when presented live.

10. The method of Claim 9, wherein the viewing computer accesses the data corresponding to the presentation slides with a browser program.

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11. The method of Claim 10, wherein each of said plurality of presentation slides is associated with a corresponding HTML slide file that is saved to a predetermined location on a network accessible by the viewing computer and at least a portion of said slide display commands comprise a link to the predetermined location of an associated HTML slide file on the network, each of said HTML slide files being opened in the browser program in response to its associated slide display command, said browser program interpreting the HTML slide files to reproduce said plurality of presentation slides.

12. The method of Claim 11, wherein the link to each HTML slide files comprises an absolute reference to a location on the network at which the HTML slide file corresponding to the link is stored.

13. The method of Claim 12, wherein each of the absolute references comprises a base portion identifying a base directory on a network resource in or below which the HTML slide files are stored, and a relative portion, identifying a location at which the HTML slide files are stored relative to the base directory, further comprising the steps of:

(a) passing the base portion to the browser program to indicate a location of the base directory;

(b) removing the base portion from each of the links in said slide display commands so as leave only the relative portion of the link; and

(c) using the relative portion of each link to enable the browser program to access the HTML file associated with that link.

14. The method of Claim 10, wherein the browser program includes a display area having a primary frame, and a secondary frame, a media player screen appearing in the secondary frame, said presentation slide files being reproduced in the primary frame, and said live visual content being reproduced in the media player screen.

15. The method of Claim 14, further comprising the steps of:

(a) indicating a location at which the data stream file is stored to the viewing computer;

(b) directing the data stream to the secondary frame; and

(c) playing the data stream in the secondary frame after at least a portion of the data stream file is received, to reproduce the live portion of the presentation.

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16. A system for recording a live presentation including a predefined content portion having a plurality of presentation slides that are displayed in response to slide triggering events during the live presentation, and a live portion with live audio and/or visual content performed in conjunction with display of said plurality of presentation slides during the live presentation, the system comprising:

(a) a local computer having a memory in which a plurality of machine instructions are stored, a user interface, and a processor coupled to the memory for executing the machine instructions;

(b) a presentation application program comprising a portion of the plurality of machine instructions stored in the memory of the local computer, the presentation application program enabling:

(i) a presenter to change slides during the live presentation in response to slide triggering events entered through the user interface; and

(ii) slide display commands to be generated in response to the slide triggering events;

(c) an audio capture subsystem that produces a digital audio signal corresponding to the live audio content; and

(d) an encoding application module comprising a portion of the plurality of machine instructions stored in the memory of the local computer, said encoding application module being used for:

(i) encoding the digital audio signal into a data stream having a streaming data format;

(ii) automatically including the slide display commands with the digital audio signal in the data stream as the digital audio signal is encoded into the data stream, said data stream being automatically time indexed to enable synchronization of the slide display commands with the digital audio signal; and

(iii) saving the data stream to a data stream file such that when the data stream file is played, said audio content is reproduced, and said plurality of presentation slides are displayed in substantial synchrony with said audio content as it is reproduced, thereby replicating the live presentation and a timing with which the presentation slides were displayed during the live presentation in connection with the live audio content.

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17. The system of Claim 16, wherein the live portion of the live presentation further comprises live visual content, further including a video capture subsystem that produces a digital video signal corresponding the live visual content, whereby the digital video signal is encoded along with the digital audio signal into the data stream, such that the audio and visual content is reproduced in synchrony when the data stream file is played.

18. The system of Claim 17, wherein the live visual content is captured as a plurality of video frames, each being encoded into the data stream with a corresponding time stamp, and the slide display commands are interleaved into the data stream, such that each slide display command has a relative time stamp based on its location in the data stream.

19. The system of Claim 18, wherein the plurality of video frames comprises a plurality of keyframes and deltaframes, and the encoding module further performs the functions of:

(a) adding a plurality of time index values to the data stream;

(b) indexing each of said plurality of keyframes to a corresponding time index value, based on a timestamp of the keyframe; and

(c) indexing each slide display command to a nearest preceding keyframe time index value, based on a time stamp of the slide display command.

20. A system for recording a live presentation including a predefined content portion having a plurality of presentation slides that are displayed in response to slide triggering events during the live presentation, and a live portion comprising live audio content performed in conjunction with display of said plurality of presentation slides during the live presentation, the system comprising:

(a) a local computer having a memory in which a plurality of machine instructions are stored, a user interface, and a processor coupled to the memory for executing the machine instructions;

(b) an audio capture subsystem that produces a digital audio signal corresponding to the live audio content;

(c) an encoding computer having a memory in which a plurality of machine instructions are stored, and a processor coupled to the memory for executing the machine instructions, the encoding computer being linked in communication with the local computer and the audio capture subsystem;

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(d) a portion of the plurality of machine instructions stored in the memory of the encoding computer comprising an encoding module, execution of the encoding module performing the functions of:

(i) encoding the digital audio signal into a data stream having a streaming data format, said data stream being automatically time indexed to enable synchronization of the slide display commands with the digital audio signal; and

(ii) saving the data stream to a data stream file; and

(e) a presentation application program comprising a portion of the plurality of machine instructions stored in the memory of the local computer, execution of the presentation application program enabling:

(i) a presenter to change slides during the live presentation by entering slide triggering events through the user interface;

(ii) slide display commands to be generated in response to the slide triggering events; and

(iii) communication of the slide display commands to the encoding computer, said slide display commands being automatically included in the data stream with the encoded digital audio signal by the encoding module as the slide display commands are received by the encoding computer and as the digital audio signal is encoded into the data stream, such that when the data stream file is played, so that said audio content is reproduced and said plurality of presentation slides are displayed in substantial synchrony with said audio content as it is reproduced, thereby replicating the live presentation and the timing of the presentation slides being displayed in connection with the audio content.

21. The system of Claim 20, wherein the live portion of the live presentation further comprises live visual content, further including a video capture subsystem that produces a digital video signal corresponding to the live visual content, said digital video signal being encoded into the data stream by the encoding module executing on the encoding computer, such that the audio content and visual content are reproduced in synchrony when the data stream file is played.

22. The system of Claim 21, wherein the live visual content is captured as a plurality of video frames, each being encoded into the data stream with a corresponding time stamp, and wherein the slide display commands are interleaved into the data stream, such that each slide display command has a relative time stamp based on its location in the data stream.

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23. The system of Claim 22, wherein the plurality of video frames comprises a plurality of keyframes and deltaframes, and the encoding module further performs the functions of:

(a) adding a plurality of time index values to the data stream;

(b) indexing each of said plurality of keyframes to a corresponding time index value, based on a time stamp of the keyframe; and

(c) indexing each slide display command to a nearest preceding keyframe time index value, based on a time stamp of the slide display command.

24. A computer-readable medium having computer-executable instructions for recording a live presentation having a predefined content portion that includes a plurality of presentation slides displayed on a computer in response to slide triggering events during the live presentation, and a live portion comprising live audio and/or visual content performed in conjunction with display of said plurality of presentation slides during the live presentation, execution of the computer-executable instructions causing a computer to:

(a) generate slide display commands corresponding to said slide triggering events captured in real time during the presentation when presented live, for controlling display of said plurality of presentation slides during playback of a recorded presentation;

(b) automatically embed the slide display commands into a data stream as the data stream is produced, the data stream comprising data corresponding to the live portion of the presentation automatically indexed with timing to ensure that the slide display commands are synchronized with the audio and/or visual content as performed in the light presentation; and

(c) save the data stream with embedded slide display commands to a file, such that when the file is played, said live portion is reproduced and such that said plurality of presentation slides are displayed in substantial synchrony with said live portion, thereby replicating the live presentation and display of said plurality of presentation slides.

25. The computer-readable medium of Claim 24, wherein execution of the computer-executable instructions further cause the live portion to be captured as it is performed during the live presentation and to be encoded into a digital streaming format.

26. The computer-readable medium of Claim 25, wherein the slide display commands are interleaved into the data stream as the slide display commands are generated.

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27. The computer-readable medium of Claim 25, wherein the live visual content is captured as a plurality of video frames, each being encoded into the data stream with a corresponding time stamp, and the slide display commands are interleaved into the data stream such that each slide display command has a relative time stamp based on its location in the data stream.

28. The computer-readable medium of Claim 25, wherein the plurality of video frames comprises a plurality of keyframes and deltaframes, execution of the computer-executable instructions causing a computer to:

(a) add a plurality of time index values to the data stream;

(b) index each of said plurality of keyframes to a corresponding time index value, based on a timestamp of the keyframe; and

(c) index each slide display command to a nearest preceding keyframe time index value, based on a time stamp of the slide display command.

29. The computer-readable medium of Claim 24, wherein:

(a) the slide triggering events are captured as they occur during the live presentation;

(b) the slide display commands are generated based on the slide triggering events that are captured.

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EVIDENCE APPENDIX

Appendix Listing

None

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RELATED PROCEEDINGS APPENDIX

Appendix Listing

None

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